Scope of claims

1. A fingerprint-processing information processing apparatus characterized by comprising:

first detection means for detecting from a fingerprint image first feature points which include one of ridge bifurcations and ridge endings of a fingerprint;

first generation means for generating a triangle which connects three arbitrary points close to one another from among the plurality of first feature points;

first calculation means for calculating an area and a length of each side of the triangle generated by the first generation means; and

storage means for storing the area and the length of each side of the triangle calculated by the first calculation means.

2. The information processing apparatus as described in claim 1, further comprising:

second detection means for detecting a center point which is a center of the fingerprint image; and

sorting means for sorting the first feature points on the basis of a distance between the center point detected by the second detection means and the plurality of first feature points; wherein

the first generation means uses the sorted first feature points to generate a triangle which connects three arbitrary points close to one another.

3. The information processing apparatus as described in claim 1, wherein:

the first detection means further detects second

feature points which are the other between the ridge bifurcations and the ridge endings, and

further including second calculation means for calculating at least one of a distance and a direction between a first point and a fourth point which is the one of the second feature points that is closest to the first point, at least either a distance and a direction between a second point and a fifth point which is the one of the second feature points that is closest to the second point, and at least one of a distance and a direction between a third point and a sixth point which is the one of the second feature points that is closet to the third point and the three first feature points which constitute the one triangle are, respectively, the first point, the second point and the third point;

the storage means further stores at least one of the distance and the direction calculated by the second calculation means, between the first point and the fourth point, between the second point and the fifth point, and between the third point and the sixth point.

4. The information processing apparatus as described in claim 3, further comprising:

second detection means for detecting a center point which is a center of the fingerprint image; and

sorting means for sorting the second feature points on the basis of a distance detected by the second detection means, between the center point and each of the plurality of second feature points; wherein

the second calculation means calculates at least one of the distance and the direction between the first point and the fourth point, between the second point and the fifth point,

and between the third point and the sixth point by using the sorted second feature points.

5. The information processing apparatus as described in claim 1, further comprising:

second detection means for detecting the first feature points of the fingerprint from the fingerprint image subject to collation;

second generation means for generating a triangle for connecting three arbitrary points close to one another from among the plurality of first feature points of the finger's fingerprint image subject to collation;

second calculation means for calculating an area and a length of each side of the triangle generated by the second generation means; and

comparison means for comparing an area and a length of each side of the triangle stored in the storage means with the area and the length of each side of the triangle of the fingerprint image subject to collation calculated by the second calculation means.

6. An information processing method characterized by comprising:

first detection step of detecting from a fingerprint image first feature points which are either ridge bifurcations and ridge endings of a fingerprint;

first generation step of generating a triangle which connects three arbitrary points close to one another from among the plurality of first feature points;

a first calculation step of calculating an area and a length of each side of the triangle generated by the

processing of the first generation step; and

a storage control step of controlling storage of the area and the length of each side of the triangle calculated by the processing of the first calculation step.

7. A computer-readable program recorded on a recording medium characterized by comprising:

first detection step of detecting from a fingerprint image first feature points which are one of ridge bifurcations and ridge endings of a fingerprint;

first generation step of generating a triangle which connects three arbitrary points close to one another from among the plurality of first feature points;

a first calculation step of calculating an area and a length of each side of the triangle generated by the processing of the first generation step; and

a storage control step of controlling storage of the area and the length of each side of the triangle calculated by the processing of the first calculation step.

either

8. A program characterized by causing a computer to execute processing comprising:

first detection step of detecting from a fingerprint image first feature points which are one of ridge bifurcations and ridge endings of a fingerprint;

first generation step of generating a triangle which connects three arbitrary points close to one another from among the plurality of first feature points;

a first calculation step of calculating an area and a length of each side of the triangle generated by the

processing of the first generation step; and

a storage control step of controlling storage of the area and the length of each side of the triangle calculated by the processing of the first calculation step.

9. An information processing apparatus characterized by comprising:

first detection means for detecting first feature points which are either ridge bifurcations and ridge endings of a fingerprint from a fingerprint image subject to collation;

first generation means for generating a triangle which connects three arbitrary points close to one another from among the plurality of first feature points;

first calculation means for calculating an area and a length of each side of the triangle generated by the first generation means; and

comparison means for comparing the area and the length of each side of the triangle of the fingerprint image subject to collation, which are calculated by the first calculation means, with an area and a length of each side of a triangle of a fingerprint image previously stored.

10. The information processing apparatus as described in claim 9, wherein:

the first detection means further detects second feature points which are the other one of the ridge bifurcations and the ridge endings; and further includes second calculation means for calculating at least one of a distance or a direction between a first point and a fourth point which is the one of the second feature points that is

closest to the first point, at least one of a distance and a direction between a second point and a fifth point which is the one of the second feature points that is closest to the second point, and at least one of a distance and a direction between a third point and a sixth point which is the one of the second feature points that is closest to the third point, and the three first feature points which constitute the one triangle are, respectively, the first point, the second point and the third point; and

the comparison means compares an area and a length of each side of the triangle of the fingerprint image subject to collation, which are calculated by the first calculation means and the second calculation means, as well as at least one of the distance and the direction of the fourth point relative to the first point, of the fifth point relative to the second point, and of the sixth point relative to the third point, with an area and a length of each side of the triangle of the stored fingerprint image as well as at least one of the distance and the direction of the fourth point relative to the first point, of the fifth point relative to the second point, and of the sixth point relative to the third point of the fingerprint image subject to collation.

11. A fingerprint-processing information processing method characterized by comprising:

a first detection step of detecting first feature points which are one of ridge bifurcations and ridge endings of a fingerprint, from a fingerprint image subject to collation;

a first generation step of generating a triangle which connects three arbitrary points close to one another from

among the plurality of first feature points;

a first calculation step of calculating an area and a length of each side of the triangle generated by the processing of the first generation step; and

a comparison step of comparing the area and the length of each side of the triangle of the fingerprint image subject to collation, which are calculated by the first calculation means, with an area and a length of each side of a triangle of a fingerprint image previously stored.

12. A recording medium recording a computer-readable program for fingerprint-processing, characterized by comprising:

fingerprint-processing information processing method characterized by comprising:

a first detection step of detecting first feature points which are one of ridge bifurcations and ridge endings of a fingerprint, from a fingerprint image subject to collation;

a first generation step of generating a triangle which connects three arbitrary points close to one another from among the plurality of first feature points;

a first calculation step of calculating an area and a length of each side of the triangle generated by the processing of the first generation step; and

a comparison step of comparing the area and the length of each side of the triangle of the fingerprint image subject to collation, which are calculated by the first calculation means, with an area and a length of each side of a triangle of a fingerprint image previously stored.

13. A fingerprint-processing computer-executable program fingerprint-processing program, characterized by comprising:

a first detection step of detecting first feature points which are one of ridge bifurcations and ridge endings of a fingerprint, from a fingerprint image subject to collation;

a first generation step of generating a triangle which connects three arbitrary points close to one another from among the plurality of first feature points;

a first calculation step of calculating an area and a length of each side of the triangle generated by the processing of the first generation step; and

a comparison step of comparing the area and the length of each side of the triangle of the fingerprint image subject to collation, which are calculated by the first calculation means, with an area and a length of each side of a triangle of a fingerprint image previously stored.